REMARKS

Claims 1-9 were pending in the application prior to this response. Claims 1-9 remain pending without change. Re-examination and reconsideration are requested.

I.   Rejection of Claim 1 Under 35 U.S.C. §102(e)

Claim 1 stands rejected under 35 U.S.C. §102(e) as being anticipated by Drake (U.S. Patent No. 7,046,229). Reconsideration of the Examiner's rejection is respectfully requested.

Applicants' claim 1 recites the following:

A game controller comprising:

a moveable element having an optically readable pattern on a surface thereof, said moveable element moving relative to a fixed position and having a position characterized by a relative position of said moveable element relative to said fixed position;

an imaging element that forms an image of a sub-area on said surface, said sub-area being determined by said relative position of said moveable element relative to said fixed position;

a memory for storing a map that specifies said readable pattern in each sub-area on said surface that can be imaged by said imaging element; and

a controller for comparing said image to said map to determine said relative position of said moveable element.

(bold emphasis added)

Applicants respectfully assert that the Drake reference does not disclose all of the limitations of claim 1. Claim 1 recites, for example:

a memory for storing a map that specifies said readable pattern in each sub-area on said surface that can be imaged by said imaging element

Thus, claim 1 requires a memory for storing a map specifying a readable pattern for each sub-area that can be imaged by the imaging element. In contrast, the Drake reference discloses only that *instructions* are stored in memory. Such instructions might, for example, be algorithms for comparing successive images in a conventional manner in order to determine the position of one image relative to the other and, thus, to determine the relative speed and direction of movement that occurred during the time interval between acquisition of the two images.

To support the assertion that Drake discloses the claim 1 limitation reproduced above, the Examiner points to column 6, line 21 through column 7, line 3 of the reference. This portion of Drake is reproduced as follows:

> FIG. 3 is a more detailed diagram, in partial block form and partial schematic form, illustrating computer input device 120 in accordance with one embodiment of the present invention. Generally, computer input device 120 includes a base member 122, such as a housing, and an operator actuated member 124 that is movable relative to base member 122. A sensor 126 is operably coupled to movable member 124. **The sensor 126 provides an output signal 128 indicative of movement of the movable member 124** relative to the base member 122. Circuitry 130 is operably coupled to sensor 126 to receive **and process output signal 128 into positional information for transmission to computer 20.**
> In one embodiment as illustrated in to FIG. 2A, circuitry 130 includes a processor 132 that is operably coupled to the sensor 126 to receive the output signal 128. In the embodiment illustrated, sensor 126 provides an analog output signal. An analog-to-digital converter 131 converts the output signal 128 to a digital signal suitable for processor 132. Processor 132 is further coupled to a computer readable medium 134, such as EPROM, RAM or ROM (hereinafter "memory"). **Memory 134 stores instructions which, when executed by processor 132, map movements of the movable member 124 (FIG. 3)**

> **relative to the base member 122** (FIG. 3) as being within at least two of three regions 140, 142 and 144 (FIG. 4). Processor 132 processes the output signal 128 to provide positional information as a function of one of the defined regions 140, 142 and 144 as illustrated in FIG. 4.
>
> It should be also noted that in an alternative embodiment, output signal 128 can be directly provided to computer 20 to determine the position of the movable member 124 relative to the base member 122 in terms of the regions 140, 142 and 144. In other words, circuitry 130 can include the processor 21. The processor 21 can execute instructions stored on computer readable medium in any of the storage devices illustrated in FIG. 1 to process the output signal and provide positional information as a function of one of the defined regions 140, 142 and 144. In yet a further embodiment, the circuitry 130 can be analog circuitry that receives the sensor output signal 128 (which can be for example a function of a change in resistance, capacitance or some other parameter) and processes the output signal 128 to determine if the movable member 124 is within one of the regions 140, 142 or 144. For instance, the analog circuitry can include operational amplifiers forming comparative circuits to compare the output signal to preselected values in order to determine whether the movable member 124 is in one of the regions 140, 142 and 144. The output signals from the comparative circuits and the output signal 128 can then be further processed by the processor 134 or the processor 21.

(Drake, column 6, line 21 - column 7, line 3, bold emphasis added)

Thus, Drake only looks for movement of the moveable member (by comparing successive images). The movement information is processed into positional information using the instructions (e.g., comparison algorithms) stored in memory:

> Memory 134 stores instructions which, when executed by processor 132, map movements of the movable member 124 (FIG. 3) relative to the base member....

(Drake, column 6, lines 42-44)

Thus, Drake does not disclose "**a memory for storing a map that specifies**

said readable pattern in each sub-area on said surface that can be imaged by said imaging element" as recited in claim 1.

Applicants' claim 1 further recites the following:

a controller for comparing said image to said map to determine said relative position of said moveable element.

As discussed above, Drake does not disclose comparing an image to a map stored in memory; instead, Drake only looks for relative movement between successive images. To support the assertion that Drake discloses the above limitation of claim 1, the Examiner points to column 11, lines 14-42 of the reference. This portion of Drake is reproduced as follows:

FIG. 8 illustrates an optically based sensor 126. In this embodiment, sensor 126 includes an electromagnetic radiation source (which may simply be a light source such as a LED) 238, an image or pattern detector 240 and a controller 242. Source 238 and image detector 240 are disposed in a recess 243 below movable member 124. Generally, radiation emitted from source 238 impinges upon a lower surface of movable member 124, which can have a predetermined pattern or image thereon. The light (electromagnetic radiation) then reflects off the lower surface of movable member 124 and toward image detector 240. Image detector 240, in one illustrative embodiment, is an artificial retina manufactured by Mitsubishi Electric Corporation and includes a two-dimensional array of variable sensitivity photo detectors, which operates in a known manner. **By comparing successive images, relative or absolute position of movable member 124 relative to base member 122 can be ascertained.** This technology is described in detail in pending U.S. patent application Ser. No. 09/217,403 filed Dec. 21, 1998, entitled "IMAGE SENSING OPERATOR INPUT DEVICE", and assigned to the same assignee as the present application, and U.S. Pat. No. 5,581,094 issued to Hara et al. Entitled "PHOTO DETECTOR ARRAY COMPRISING PHOTO DECTORS AND OBJECT

DETECTOR COMPRISING THE PHOTO DETECTOR ARRAY AND AN
OBJECT DETECTING PROCEDURE" assigned to Mitsubishi Electric
Corporation, both of which are hereby incorporated by reference in their entirety.

(Drake, column 11, lines 14-42, bold emphasis added)

This portion of Drake, again, simply points out that successive images are compared to ascertain the position of the moveable member. The Drake processor performs this task by executing instructions stored in memory:

In the embodiment illustrated, processor 136 executes instructions stored in computer readable medium 134 to map a position of movable member 124....

(Drake, column 11, lines 44-47)

Thus, Drake does not disclose a "**controller for comparing said image to said map to determine said relative position of said moveable element**" as recited in applicants' claim 1.

Since Drake does not disclose all of the limitations of claim 1, claim 1 is not anticipated by Drake. The standard for lack of novelty, that is, for "anticipation," under 35 U.S.C. §102 is one of strict identity. To anticipate a claim for a patent, a single prior source must contain all its essential elements. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 231 USPQ 81, 90 (Fed. Cir. 1986).

For at least the reasons advanced above, applicant respectfully asserts that the Examiner's rejection is improper and that claim 1 is in condition for allowance.

II.   Rejection of Claim 2 Under 35 U.S.C. §103(a)

Claim 2 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Drake (U.S. Patent No. 7,046,229) in view of Chen et al. (U.S. Patent Application Publication No. 2003/0020690). Reconsideration of the Examiner's rejection is respectfully requested.

Claim 2 is allowable at least as depending from allowable base claim 1.

III.   Rejection of Claim 3 Under 35 U.S.C. §103(a)

Claim 3 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Drake (U.S. Patent No. 7,046,229) in view of Liebenow (U.S. Patent No. 6,078,312). Reconsideration of the Examiner's rejection is respectfully requested.

Claim 3 is allowable at least as depending from allowable base claim 1.

IV.   Rejection of Claims 4-7 Under 35 U.S.C. §103(a)

Claims 4-7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Drake (U.S. Patent No. 7,046,229) in view of Liebenow (U.S. Patent No. 6,078,312) and further in view of Rosenberg (U.S. Patent Application Publication No. 2005/0009605). Reconsideration of the Examiner's rejection is respectfully requested.

Claims 4-7 are allowable at least as ultimately depending from allowable base claim 1.

V.   Rejection of Claim 8 Under 35 U.S.C. §103(a)

Claim 8 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Drake (U.S. Patent No. 7,046,229) in view of Rosenberg (U.S. Patent Application Publication No. 2005/0009605). Reconsideration of the Examiner's rejection is respectfully requested.

Claim 8 is allowable at least as depending from allowable base claim 1.

VI.   Rejection of Claim 9 Under 35 U.S.C. §103(a)

Claim 9 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Drake (U.S. Patent No. 7,046,229). Reconsideration of the Examiner's rejection is respectfully requested.

Claim 9 is allowable at least as depending from allowable base claim 1.

For at least the foregoing reasons, applicant respectfully asserts that all of the
pending claims are in condition for allowance.

Respectfully submitted,
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